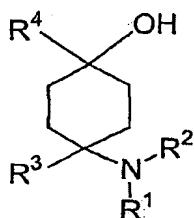


What is claimed is:

1. A substituted 4-aminocyclohexanol compound corresponding to formula I,



I

wherein

$R^1$  and  $R^2$  independently of one another represent H; saturated or unsaturated, branched or unbranched, singly or multiply substituted or unsubstituted  $C_{1-8}$ -alkyl or  $C_{3-8}$ -cycloalkyl; singly or multiply substituted or unsubstituted aryl or heteroaryl; or singly or multiply substituted or unsubstituted aryl bound via  $C_{1-3}$ -alkylene,  $C_{3-8}$ -cycloalkyl or heteroaryl; wherein  $R^1$  and  $R^2$  are not both H, or the radicals  $R^1$  and  $R^2$  together form a ring and represent  $CH_2CH_2OCH_2CH_2$ ,  $CH_2CH_2NR^5CH_2CH_2$  or  $(CH_2)_{3-6}$ ,

wherein

$R^5$  represents H; saturated or unsaturated, branched or unbranched, singly or multiply substituted or unsubstituted  $C_{1-8}$ -alkyl or  $C_{3-8}$ -cycloalkyl; singly or multiply substituted or unsubstituted aryl or heteroaryl; or singly or multiply substituted or unsubstituted aryl bound via  $C_{1-3}$ -alkylene,  $C_{3-8}$ -cycloalkyl or heteroaryl;

$R^3$  represents unsubstituted or singly or multiply substituted aryl or heteroaryl;

$R^4$  represents unsubstituted or singly or multiply substituted  $C_{3-8}$ -cycloalkyl, aryl or heteroaryl;  $-CHR^6R^7$ ,  $-CHR^6-CH_2R^7$ ,  $-CHR^6-CH_2-CH_2R^7$ ,  $-CHR^6-CH_2-CH_2-CH_2R^7$ ,  $-C(Y)R^7$ ,  $-C(Y)-CH_2R^7$ ,  $-C(Y)-CH_2-CH_2R^7$  or  $-C(Y)-CH_2-CH_2-CH_2R^7$ ; or  $-R^8$ .

L-R<sup>9</sup>

wherein

Y = O, S or H<sub>2</sub>;

R<sup>6</sup> represents H, saturated or unsaturated, branched or unbranched, singly or multiply substituted or unsubstituted C<sub>1-7</sub>-alkyl; or saturated or unsaturated, branched or unbranched, singly or multiply substituted or unsubstituted C(O)O-C<sub>1-6</sub>-alkyl;

R<sup>7</sup> represents H; unsubstituted or singly or multiply substituted C<sub>3-8</sub>-cycloalkyl, aryl or heteroaryl;

R<sup>8</sup> represents unsubstituted or singly or multiply substituted aryl or heteroaryl;

L represents -C(O)-NH-, -NH-C(O)-, -C(O)-O-, -O-C(O)-, -O-, -S- or -S(O)<sub>2</sub>-; and

R<sup>9</sup> represents unsubstituted or singly or multiply substituted aryl or heteroaryl,

provided that,

if R<sup>3</sup> = substituted or unsubstituted phenyl, and R<sup>4</sup> = phenyl or -CHR<sup>6</sup>R<sup>7</sup>, -CHR<sup>6</sup>-CH<sub>2</sub>R<sup>7</sup>, -CHR<sup>6</sup>-CH<sub>2</sub>-CH<sub>2</sub>R<sup>7</sup>, -CHR<sup>6</sup>-CH<sub>2</sub>-CH<sub>2</sub>-CH<sub>2</sub>R<sup>7</sup>, -C(Y)R<sup>7</sup>, -C(Y)-CH<sub>2</sub>R<sup>7</sup>, -C(Y)-CH<sub>2</sub>-CH<sub>2</sub>R<sup>7</sup> or -C(Y)-CH<sub>2</sub>-CH<sub>2</sub>-CH<sub>2</sub>R<sup>7</sup>

where Y = H<sub>2</sub>,

R<sup>6</sup> = H, saturated or unsaturated, branched or unbranched, singly or multiply substituted or unsubstituted C<sub>1-5</sub>-alkyl,

or

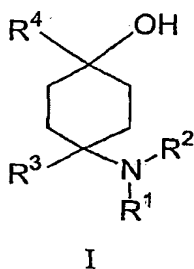
R<sup>7</sup> = H, substituted or unsubstituted C<sub>3-8</sub>-cycloalkyl or phenyl, and

R<sup>1</sup> and R<sup>2</sup> independently of one another are not both C<sub>1-5</sub>-alkyl,

or

if  $R^3$  = substituted or unsubstituted thiophenyl, and  $R^4$  =  $-\text{CH}_2\text{-CH}_2\text{-phenyl}$ ,  
the radicals  $R^1$  and  $R^2$  do not together form a ring and represent  $(\text{CH}_2)_5$ ,  
or a salt thereof with a physiologically tolerated acid.

2. A substituted 4-aminocyclohexanol compound corresponding to formula I,



wherein

the radicals  $R^1$  and  $R^2$  together form a ring and represent  $\text{CH}_2\text{CH}_2\text{OCH}_2\text{CH}_2$ ,  
 $\text{CH}_2\text{CH}_2\text{NR}^5\text{CH}_2\text{CH}_2$  or  $(\text{CH}_2)_{3-6}$ ,

where  $R^5$  represents H; saturated or unsaturated, branched or  
unbranched, singly or multiply substituted or unsubstituted  $\text{C}_{1-8}$ -alkyl or  
 $\text{C}_{3-8}$ -cycloalkyl; singly or multiply substituted or unsubstituted aryl or  
heteroaryl; or singly or multiply substituted or unsubstituted aryl bound  
via  $\text{C}_{1-3}$ -alkylene,  $\text{C}_{3-8}$ -cycloalkyl or heteroaryl;

$R^3$  represents unsubstituted or singly or multiply substituted aryl or heteroaryl;

$R^4$  represents unsubstituted or singly or multiply substituted  $\text{C}_{3-8}$ -cycloalkyl, aryl  
or heteroaryl;  $-\text{CHR}^6\text{R}^7$ ,  $-\text{CHR}^6\text{-CH}_2\text{R}^7$ ,  $-\text{CHR}^6\text{-CH}_2\text{-CH}_2\text{R}^7$ ,  $-\text{CHR}^6\text{-CH}_2\text{-CH}_2\text{-}$   
 $\text{CH}_2\text{R}^7$ ,  $-\text{C}(\text{Y})\text{R}^7$ ,  $-\text{C}(\text{Y})\text{-CH}_2\text{R}^7$ ,  $-\text{C}(\text{Y})\text{-CH}_2\text{-CH}_2\text{R}^7$  or  $-\text{C}(\text{Y})\text{-CH}_2\text{-CH}_2\text{-CH}_2\text{R}^7$ ; or  $-\text{R}^8\text{-}$   
 $\text{L-R}^9$

wherein

Y = O, S or H<sub>2</sub>;

R<sup>6</sup> represents H, saturated or unsaturated, branched or unbranched, singly or multiply substituted or unsubstituted C<sub>1-7</sub>-alkyl; or saturated or unsaturated, branched or unbranched, singly or multiply substituted or unsubstituted C(O)O-C<sub>1-6</sub>-alkyl;

R<sup>7</sup> represents H; unsubstituted or singly or multiply substituted C<sub>3-8</sub>-cycloalkyl, aryl or heteroaryl;

R<sup>8</sup> represents unsubstituted or singly or multiply substituted aryl or heteroaryl;

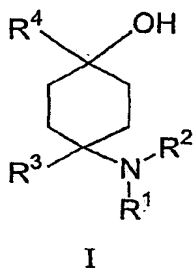
L represents -C(O)-NH-, -NH-C(O)-, -C(O)-O-, -O-C(O)-, -O-, -S- or -S(O)<sub>2</sub>;  
and

R<sup>9</sup> represents unsubstituted or singly or multiply substituted aryl or heteroaryl,

provided that,

if R<sup>3</sup> = substituted or unsubstituted thiophenyl, and R<sup>4</sup> = -CH<sub>2</sub>-CH<sub>2</sub>-phenyl,  
the radicals R<sup>1</sup> and R<sup>2</sup> do not together form a ring and represent (CH<sub>2</sub>)<sub>5</sub>,  
or a salt thereof with a physiologically tolerated acid.

3. A substituted 4-aminocyclohexanol compound corresponding to formula I,



wherein

$R^1$  and  $R^2$  independently of one another represent H; saturated or unsaturated, branched or unbranched, singly or multiply substituted or unsubstituted  $C_{1-8}$ -alkyl or  $C_{3-8}$ -cycloalkyl; singly or multiply substituted or unsubstituted aryl or heteroaryl; or singly or multiply substituted or unsubstituted aryl bound via  $C_{1-3}$ -alkylene,  $C_{3-8}$ -cycloalkyl or heteroaryl; wherein  $R^1$  and  $R^2$  are not both H,

$R^3$  represents unsubstituted or singly or multiply substituted aryl or heteroaryl;

$R^4$  represents unsubstituted or singly or multiply substituted  $C_{3-8}$ -cycloalkyl, aryl or heteroaryl;  $-CHR^6R^7$ ,  $-CHR^6-CH_2R^7$ ,  $-CHR^6-CH_2-CH_2R^7$ ,  $-CHR^6-CH_2-CH_2-CH_2R^7$ ,  $-C(Y)R^7$ ,  $-C(Y)-CH_2R^7$ ,  $-C(Y)-CH_2-CH_2R^7$  or  $-C(Y)-CH_2-CH_2-CH_2R^7$ ; or  $-R^8-L-R^9$

wherein

$Y = O, S$  or  $H_2$ ;

$R^6$  represents H, saturated or unsaturated, branched or unbranched, singly or multiply substituted or unsubstituted  $C_{1-7}$ -alkyl; or saturated or unsaturated, branched or unbranched, singly or multiply substituted or unsubstituted  $C(O)O-C_{1-6}$ -alkyl;

$R^7$  represents H; unsubstituted or singly or multiply substituted  $C_{3-8}$ -cycloalkyl, aryl or heteroaryl;

$R^8$  represents unsubstituted or singly or multiply substituted aryl or

heteroaryl;

L represents -C(O)-NH-, -NH-C(O)-, -C(O)-O-, -O-C(O)-, -O-, -S- or -S(O)<sub>2</sub>-;  
and

R<sup>9</sup> represents unsubstituted or singly or multiply substituted aryl or  
heteroaryl,

provided that,

if R<sup>3</sup> = substituted or unsubstituted phenyl, and R<sup>4</sup> = phenyl or -CHR<sup>6</sup>R<sup>7</sup>, -CHR<sup>6</sup>-CH<sub>2</sub>R<sup>7</sup>, -CHR<sup>6</sup>-CH<sub>2</sub>-CH<sub>2</sub>R<sup>7</sup>, -CHR<sup>6</sup>-CH<sub>2</sub>-CH<sub>2</sub>-CH<sub>2</sub>R<sup>7</sup>, -C(Y)R<sup>7</sup>, -C(Y)-CH<sub>2</sub>R<sup>7</sup>, -C(Y)-CH<sub>2</sub>-CH<sub>2</sub>R<sup>7</sup> or -C(Y)-CH<sub>2</sub>-CH<sub>2</sub>-CH<sub>2</sub>R<sup>7</sup>,

where Y = H<sub>2</sub>

R<sup>6</sup> = H, saturated or unsaturated, branched or unbranched, singly or multiply  
substituted or unsubstituted C<sub>1-5</sub>-alkyl,

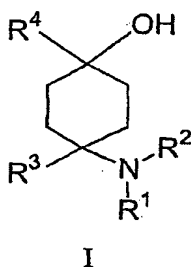
or

R<sup>7</sup> = H, substituted or unsubstituted C<sub>3-8</sub>-cycloalkyl or phenyl, and

R<sup>1</sup> and R<sup>2</sup> independently of one another are not both C<sub>1-5</sub>-alkyl,

or a salt thereof with a physiologically tolerated acid.

4. A substituted 4-aminocyclohexanol corresponding to formula I,



wherein

R<sup>1</sup> and R<sup>2</sup> independently of one another represent H; saturated or unsaturated, branched or unbranched, singly or multiply substituted or unsubstituted C<sub>1-8</sub>-alkyl or C<sub>3-8</sub>-cycloalkyl; singly or multiply substituted or unsubstituted aryl or heteroaryl; or singly or multiply substituted or unsubstituted aryl bound via C<sub>1-3</sub>-alkylene, C<sub>3-8</sub>-cycloalkyl or heteroaryl; wherein R<sup>1</sup> and R<sup>2</sup> are not both H, or the radicals R<sup>1</sup> and R<sup>2</sup> together form a ring and represent CH<sub>2</sub>CH<sub>2</sub>OCH<sub>2</sub>CH<sub>2</sub>, CH<sub>2</sub>CH<sub>2</sub>NR<sup>5</sup>CH<sub>2</sub>CH<sub>2</sub> or (CH<sub>2</sub>)<sub>3-6</sub>,

wherein R<sup>5</sup> represents H; saturated or unsaturated, branched or unbranched, singly or multiply substituted or unsubstituted C<sub>1-8</sub>-alkyl or C<sub>3-8</sub>-cycloalkyl; singly or multiply substituted or unsubstituted aryl or heteroaryl; or singly or multiply substituted or unsubstituted aryl bound via C<sub>1-3</sub>-alkylene, C<sub>3-8</sub>-cycloalkyl or heteroaryl;

R<sup>3</sup> represents unsubstituted or singly or multiply substituted heteroaryl;

R<sup>4</sup> represents unsubstituted or singly or multiply substituted C<sub>3-8</sub>-cycloalkyl, aryl or heteroaryl; -CHR<sup>6</sup>R<sup>7</sup>, -CHR<sup>6</sup>-CH<sub>2</sub>R<sup>7</sup>, -CHR<sup>6</sup>-CH<sub>2</sub>-CH<sub>2</sub>R<sup>7</sup>, -CHR<sup>6</sup>-CH<sub>2</sub>-CH<sub>2</sub>-CH<sub>2</sub>R<sup>7</sup>, -C(Y)R<sup>7</sup>, -C(Y)-CH<sub>2</sub>R<sup>7</sup>, -C(Y)-CH<sub>2</sub>-CH<sub>2</sub>R<sup>7</sup> or -C(Y)-CH<sub>2</sub>-CH<sub>2</sub>-CH<sub>2</sub>R<sup>7</sup>; or -R<sup>8</sup>-L-R<sup>9</sup>

wherein

Y = O, S or H<sub>2</sub>;

R<sup>6</sup> represents H, saturated or unsaturated, branched or unbranched, singly or multiply substituted or unsubstituted C<sub>1-7</sub>-alkyl; or saturated or unsaturated, branched or unbranched, singly or multiply substituted or unsubstituted C(O)O-C<sub>1-6</sub>-alkyl;

R<sup>7</sup> represents H; unsubstituted or singly or multiply substituted C<sub>3-8</sub>-cycloalkyl, aryl or heteroaryl;

$R^8$  represents unsubstituted or singly or multiply substituted aryl or heteroaryl;

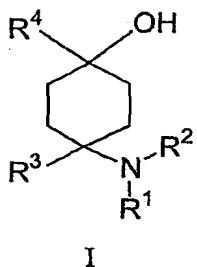
L represents  $-C(O)-NH-$ ,  $-NH-C(O)-$ ,  $-C(O)-O-$ ,  $-O-C(O)-$ ,  $-O-$ ,  $-S-$  or  $-S(O)_2-$ ; and

$R^9$  represents unsubstituted or singly or multiply substituted aryl or heteroaryl;

provided that,

if  $R^3$  = substituted or unsubstituted thiophenyl, and  $R^4$  =  $-\text{CH}_2-\text{CH}_2\text{-phenyl}$ , the radicals  $R^1$  and  $R^2$  do not together form a ring and represent  $(\text{CH}_2)_5$ , or a salt thereof with a physiologically tolerated acid.

5. A substituted 4-aminocyclohexanol compound corresponding to formula I,



wherein

$R^1$  and  $R^2$  independently of one another represent H; saturated or unsaturated, branched or unbranched, singly or multiply substituted or unsubstituted  $C_{1-8}$ -alkyl or  $C_{3-8}$ -cycloalkyl; singly or multiply substituted or unsubstituted aryl or heteroaryl; or singly or multiply substituted or unsubstituted aryl bound via  $C_{1-3}$ -alkylene,  $C_{3-8}$ -cycloalkyl or heteroaryl; wherein  $R^1$  and  $R^2$  are not both H, or the radicals  $R^1$  and  $R^2$  together form a ring and represent  $\text{CH}_2\text{CH}_2\text{OCH}_2\text{CH}_2$ ,



$\text{CH}_2\text{CH}_2\text{NR}^5\text{CH}_2\text{CH}_2$  or  $(\text{CH}_2)_{3-6}$ ,

wherein  $\text{R}^5$  represents H; saturated or unsaturated, branched or unbranched, singly or multiply substituted or unsubstituted  $\text{C}_{1-8}$ -alkyl or  $\text{C}_{3-8}$ -cycloalkyl; singly or multiply substituted or unsubstituted aryl or heteroaryl; or singly or multiply substituted or unsubstituted aryl bound via  $\text{C}_{1-3}$ -alkylene,  $\text{C}_{3-8}$ -cycloalkyl or heteroaryl;

$\text{R}^3$  represents unsubstituted or singly or multiply substituted aryl;

$\text{R}^4$  represents unsubstituted or singly or multiply substituted  $\text{C}_{3-8}$ -cycloalkyl, aryl or heteroaryl;  $-\text{CHR}^6\text{R}^7$ ,  $-\text{CHR}^6-\text{CH}_2\text{R}^7$ ,  $-\text{CHR}^6-\text{CH}_2-\text{CH}_2\text{R}^7$ ,  $-\text{CHR}^6-\text{CH}_2-\text{CH}_2-\text{CH}_2\text{R}^7$ ,  $-\text{C}(\text{Y})\text{R}^7$ ,  $-\text{C}(\text{Y})-\text{CH}_2\text{R}^7$ ,  $-\text{C}(\text{Y})-\text{CH}_2-\text{CH}_2\text{R}^7$  or  $-\text{C}(\text{Y})-\text{CH}_2-\text{CH}_2-\text{CH}_2\text{R}^7$ ; or  $-\text{R}^8-\text{L}-\text{R}^9$

wherein

$\text{Y} = \text{O}, \text{S}$  or  $\text{H}_2$ ;

$\text{R}^6$  represents H, saturated or unsaturated, branched or unbranched, singly or multiply substituted or unsubstituted  $\text{C}_{1-7}$ -alkyl; or saturated or unsaturated, branched or unbranched, singly or multiply substituted or unsubstituted  $\text{C}(\text{O})\text{O}-\text{C}_{1-6}$ -alkyl;

$\text{R}^7$  represents H; unsubstituted or singly or multiply substituted  $\text{C}_{3-8}$ -cycloalkyl, aryl or heteroaryl;

$\text{R}^8$  represents unsubstituted or singly or multiply substituted aryl or heteroaryl;

$\text{L}$  represents  $-\text{C}(\text{O})-\text{NH}-$ ,  $-\text{NH}-\text{C}(\text{O})-$ ,  $-\text{C}(\text{O})-\text{O}-$ ,  $-\text{O}-\text{C}(\text{O})-$ ,  $-\text{O}-$ ,  $-\text{S}-$  or  $-\text{S}(\text{O})_2-$ ; and

$\text{R}^9$  represents unsubstituted or singly or multiply substituted aryl or heteroaryl,

provided that,

if  $R^3$  = substituted or unsubstituted phenyl, and  $R^4$  = phenyl or  $-\text{CHR}^6\text{R}^7$ ,  $-\text{CHR}^6\text{-CH}_2\text{R}^7$ ,  $-\text{CHR}^6\text{-CH}_2\text{-CH}_2\text{R}^7$ ,  $-\text{CHR}^6\text{-CH}_2\text{-CH}_2\text{-CH}_2\text{R}^7$ ,  $-\text{C(Y)R}^7$ ,  $-\text{C(Y)-CH}_2\text{R}^7$ ,  $-\text{C(Y)-CH}_2\text{-CH}_2\text{R}^7$  or  $-\text{C(Y)-CH}_2\text{-CH}_2\text{-CH}_2\text{R}^7$

where  $\text{Y} = \text{H}_2$

$R^6$  = H, saturated or unsaturated, branched or unbranched, singly or multiply substituted or unsubstituted  $\text{C}_{1-5}$ -alkyl;

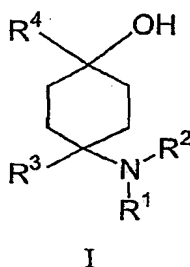
or

$R^7$  = H, substituted or unsubstituted  $\text{C}_{3-8}$ -cycloalkyl or phenyl, and

$R^1$  and  $R^2$  independently of one another are not both  $\text{C}_{1-5}$ -alkyl,

or a salt thereof with a physiologically tolerated acid.

6. A substituted 4-aminocyclohexanol compound corresponding to formula I,



wherein

the radicals  $R^1$  and  $R^2$  together form a ring and represent  $\text{CH}_2\text{CH}_2\text{OCH}_2\text{CH}_2$ ,  $\text{CH}_2\text{CH}_2\text{NR}^5\text{CH}_2\text{CH}_2$  or  $(\text{CH}_2)_{3-6}$ ,

wherein  $R^5$  represents H; saturated or unsaturated, branched or unbranched, singly or multiply substituted or unsubstituted  $\text{C}_{1-8}$ -alkyl or  $\text{C}_{3-8}$ -cycloalkyl; singly or multiply substituted or unsubstituted aryl or

heteroaryl; or singly or multiply substituted or unsubstituted aryl bound via C<sub>1-3</sub>-alkylene, C<sub>3-8</sub>-cycloalkyl or heteroaryl;

R<sup>3</sup> represents unsubstituted or singly or multiply substituted aryl;

R<sup>4</sup> represents unsubstituted or singly or multiply substituted C<sub>3-8</sub>-cycloalkyl, aryl or heteroaryl; -CHR<sup>6</sup>R<sup>7</sup>, -CHR<sup>6</sup>-CH<sub>2</sub>R<sup>7</sup>, -CHR<sup>6</sup>-CH<sub>2</sub>-CH<sub>2</sub>R<sup>7</sup>, -CHR<sup>6</sup>-CH<sub>2</sub>-CH<sub>2</sub>-CH<sub>2</sub>R<sup>7</sup>, -C(Y)R<sup>7</sup>, -C(Y)-CH<sub>2</sub>R<sup>7</sup>, -C(Y)-CH<sub>2</sub>-CH<sub>2</sub>R<sup>7</sup> or -C(Y)-CH<sub>2</sub>-CH<sub>2</sub>-CH<sub>2</sub>R<sup>7</sup>; or -R<sup>8</sup>-L-R<sup>9</sup>

wherein

Y = O, S or H<sub>2</sub>;

R<sup>6</sup> represents H, saturated or unsaturated, branched or unbranched, singly or multiply substituted or unsubstituted C<sub>1-7</sub>-alkyl; or saturated or unsaturated, branched or unbranched, singly or multiply substituted or unsubstituted C(O)O-C<sub>1-6</sub>-alkyl;

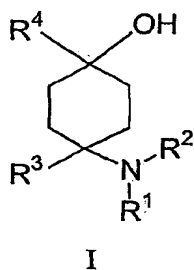
R<sup>7</sup> represents H; unsubstituted or singly or multiply substituted C<sub>3-8</sub>-cycloalkyl, aryl or heteroaryl;

R<sup>8</sup> represents unsubstituted or singly or multiply substituted aryl or heteroaryl;

L represents -C(O)-NH-, -NH-C(O)-, -C(O)-O-, -O-C(O)-, -O-, -S- or -S(O)<sub>2</sub>-; and

R<sup>9</sup> unsubstituted or singly or multiply substituted aryl or heteroaryl, or a salt thereof with a physiologically tolerated acid.

7. A substituted 4-aminocyclohexanol compound corresponding to formula I,



wherein

$R^1$  and  $R^2$  independently of one another represent H; saturated or unsaturated, branched or unbranched, singly or multiply substituted or unsubstituted  $C_{1-8}$ -alkyl or  $C_{3-8}$ -cycloalkyl; singly or multiply substituted or unsubstituted aryl or heteroaryl; or singly or multiply substituted or unsubstituted aryl bound via  $C_{1-3}$ -alkylene,  $C_{3-8}$ -cycloalkyl or heteroaryl; wherein  $R^1$  and  $R^2$  are not both H,

$R^3$  represents unsubstituted or singly or multiply substituted heteroaryl;

$R^4$  represents unsubstituted or singly or multiply substituted  $C_{3-8}$ -cycloalkyl, aryl or heteroaryl;  $-CHR^6R^7$ ,  $-CHR^6-CH_2R^7$ ,  $-CHR^6-CH_2-CH_2R^7$ ,  $-CHR^6-CH_2-CH_2-CH_2R^7$ ,  $-C(Y)R^7$ ,  $-C(Y)-CH_2R^7$ ,  $-C(Y)-CH_2-CH_2R^7$  or  $-C(Y)-CH_2-CH_2-CH_2R^7$ ; or  $-R^8-L-R^9$

wherein

$Y = O, S$  or  $H_2$ ;

$R^6$  represents H, saturated or unsaturated, branched or unbranched, singly or multiply substituted or unsubstituted  $C_{1-7}$ -alkyl; or saturated or unsaturated, branched or unbranched, singly or multiply substituted or unsubstituted  $C(O)O-C_{1-6}$ -alkyl;

$R^7$  represents H; unsubstituted or singly or multiply substituted  $C_{3-8}$ -cycloalkyl, aryl or heteroaryl;

$R^8$  represents unsubstituted or singly or multiply substituted aryl or

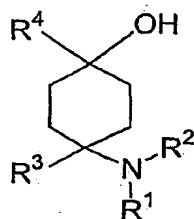
heteroaryl;

L represents -C(O)-NH-, -NH-C(O)-, -C(O)-O-, -O-C(O)-, -O-, -S- or -S(O)<sub>2</sub>;  
and

R<sup>9</sup> represents unsubstituted or singly or multiply substituted aryl or heteroaryl,

or a salt thereof with a physiologically tolerated acid.

8. A substituted 4-aminocyclohexanol compound corresponding to formula I,



I

wherein

R<sup>1</sup> and R<sup>2</sup> independently of one another represent H; saturated or unsaturated, branched or unbranched, singly or multiply substituted or unsubstituted C<sub>1-8</sub>-alkyl or C<sub>3-8</sub>-cycloalkyl; singly or multiply substituted or unsubstituted aryl or heteroaryl; or singly or multiply substituted or unsubstituted aryl bound via C<sub>1-3</sub>-alkylene, C<sub>3-8</sub>-cycloalkyl or heteroaryl; wherein R<sup>1</sup> and R<sup>2</sup> are not both H, or the radicals R<sup>1</sup> and R<sup>2</sup> together form a ring and represent CH<sub>2</sub>CH<sub>2</sub>OCH<sub>2</sub>CH<sub>2</sub>, CH<sub>2</sub>CH<sub>2</sub>NR<sup>5</sup>CH<sub>2</sub>CH<sub>2</sub> or (CH<sub>2</sub>)<sub>3-6</sub>,

wherein R<sup>5</sup> represents H; saturated or unsaturated, branched or unbranched, singly or multiply substituted or unsubstituted C<sub>1-8</sub>-alkyl or C<sub>3-8</sub>-cycloalkyl; singly or multiply substituted or unsubstituted aryl or

heteroaryl; or singly or multiply substituted or unsubstituted aryl bound via C<sub>1-3</sub>-alkylene, C<sub>3-8</sub>-cycloalkyl or heteroaryl;

R<sup>3</sup> represents unsubstituted or singly or multiply substituted aryl or heteroaryl;

R<sup>4</sup> represents unsubstituted or singly or multiply substituted C<sub>3-8</sub>-cycloalkyl, aryl or heteroaryl; -CHR<sup>6</sup>R<sup>7</sup>, -CHR<sup>6</sup>-CH<sub>2</sub>R<sup>7</sup>, -CHR<sup>6</sup>-CH<sub>2</sub>-CH<sub>2</sub>R<sup>7</sup>, -CHR<sup>6</sup>-CH<sub>2</sub>-CH<sub>2</sub>-CH<sub>2</sub>R<sup>7</sup>, -C(Y)R<sup>7</sup>, -C(Y)-CH<sub>2</sub>R<sup>7</sup>, -C(Y)-CH<sub>2</sub>-CH<sub>2</sub>R<sup>7</sup> or -C(Y)-CH<sub>2</sub>-CH<sub>2</sub>-CH<sub>2</sub>R<sup>7</sup>; or -R<sup>8</sup>-L-R<sup>9</sup>

wherein

Y = H<sub>2</sub>,

R<sup>6</sup> represents H, saturated or unsaturated, branched or unbranched, singly or multiply substituted or unsubstituted C<sub>1-7</sub>-alkyl

R<sup>7</sup> represents unsubstituted or singly or multiply substituted heteroaryl,

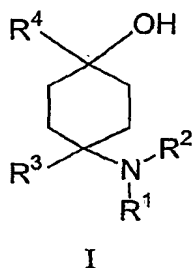
R<sup>8</sup> represents unsubstituted or singly or multiply substituted aryl or heteroaryl,

L represents -C(O)-NH-, -NH-C(O)-, -C(O)-O-, -O-C(O)-, -O-, -S- or -S(O)<sub>2</sub>;  
and

R<sup>9</sup> represents unsubstituted or singly or multiply substituted aryl or heteroaryl,

or a salt thereof with a physiologically tolerated acid.

9. A substituted 4-aminocyclohexanol compound corresponding to formula I,



wherein

$R^1$  and  $R^2$  independently of one another represent H; saturated or unsaturated, branched or unbranched, singly or multiply substituted or unsubstituted  $C_{1-8}$ -alkyl or  $C_{3-8}$ -cycloalkyl; singly or multiply substituted or unsubstituted aryl or heteroaryl; or singly or multiply substituted or unsubstituted aryl bound via  $C_{1-3}$ -alkylene,  $C_{3-8}$ -cycloalkyl or heteroaryl; wherein  $R^1$  and  $R^2$  are not both H, or the radicals  $R^1$  and  $R^2$  together form a ring and represent  $CH_2CH_2OCH_2CH_2$ ,  $CH_2CH_2NR^5CH_2CH_2$  or  $(CH_2)_{3-6}$ ;

wherein  $R^5$  represents H; saturated or unsaturated, branched or unbranched, singly or multiply substituted or unsubstituted  $C_{1-8}$ -alkyl or  $C_{3-8}$ -cycloalkyl; singly or multiply substituted or unsubstituted aryl or heteroaryl; or singly or multiply substituted or unsubstituted aryl bound via  $C_{1-3}$ -alkylene,  $C_{3-8}$ -cycloalkyl or heteroaryl;

$R^3$  represents unsubstituted or singly or multiply substituted aryl or heteroaryl;

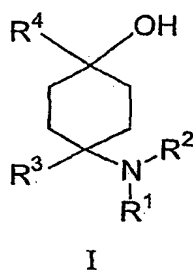
$R^4$  represents  $-CHR^6R^7$ ,  $-CHR^6-CH_2R^7$ ,  $-CHR^6-CH_2-CH_2R^7$  or  $-CHR^6-CH_2-CH_2-CH_2R^7$ ;

$R^6$  represents saturated or unsaturated, branched or unbranched, singly or multiply substituted or unsubstituted  $C(O)O-C_{1-6}$ -alkyl; and

$R^7$  represents H; respectively unsubstituted or singly or multiply substituted  $C_{3-8}$ -cycloalkyl, aryl or heteroaryl,

or a salt thereof with a physiologically tolerated acid.

10. A substituted 4-aminocyclohexanol compound corresponding to formula I,



wherein

$R^1$  and  $R^2$  independently of one another represent H; saturated or unsaturated, branched or unbranched, singly or multiply substituted or unsubstituted  $C_{1-8}$ -alkyl or  $C_{3-8}$ -cycloalkyl; singly or multiply substituted or unsubstituted aryl or heteroaryl; or singly or multiply substituted or unsubstituted aryl bound via  $C_{1-3}$ -alkylene,  $C_{3-8}$ -cycloalkyl or heteroaryl; wherein  $R^1$  and  $R^2$  are not both H,

or the radicals  $R^1$  and  $R^2$  together form a ring and represent  $CH_2CH_2OCH_2CH_2$ ,  $CH_2CH_2NR^5CH_2CH_2$  or  $(CH_2)_{3-6}$ ,

wherein  $R^5$  represents H; saturated or unsaturated, branched or unbranched, singly or multiply substituted or unsubstituted  $C_{1-8}$ -alkyl or  $C_{3-8}$ -cycloalkyl; singly or multiply substituted or unsubstituted aryl or heteroaryl; or singly or multiply substituted or unsubstituted aryl bound via  $C_{1-3}$ -alkylene,  $C_{3-8}$ -cycloalkyl or heteroaryl;

$R^3$  represents unsubstituted or singly or multiply substituted aryl or heteroaryl;

$R^4$  represents  $-C(Y)R^7$ ,  $-C(Y)-CH_2R^7$ ,  $-C(Y)-CH_2-CH_2R^7$  or  $-C(Y)-CH_2-CH_2-CH_2R^7$ ;

wherein



Y = O or S; and

R<sup>7</sup> represents H; unsubstituted or singly or multiply substituted C<sub>3-8</sub>-cycloalkyl, aryl or heteroaryl,

or a salt thereof with a physiologically tolerated acid.

11. A substituted 4-aminocyclohexanol compound according to claim 1 wherein:

R<sup>1</sup> and R<sup>2</sup> independently of one another represent H; saturated or unsaturated, branched or unbranched, singly or multiply substituted or unsubstituted C<sub>1-8</sub>-alkyl; wherein R<sup>1</sup> and R<sup>2</sup> are not both H,

or the radicals R<sup>1</sup> and R<sup>2</sup> together form a ring and represent CH<sub>2</sub>CH<sub>2</sub>OCH<sub>2</sub>CH<sub>2</sub>, CH<sub>2</sub>CH<sub>2</sub>NR<sup>5</sup>CH<sub>2</sub>CH<sub>2</sub> or (CH<sub>2</sub>)<sub>3-6</sub>,

where R<sup>5</sup> represents H; saturated or unsaturated, branched or unbranched, singly or multiply substituted or unsubstituted C<sub>1-8</sub>-alkyl.

12. A substituted 4-aminocyclohexanol compound according to claim 4 wherein:

R<sup>1</sup> and R<sup>2</sup> independently of one another represent H; saturated or unsaturated, branched or unbranched, singly or multiply substituted or unsubstituted C<sub>1-8</sub>-alkyl; wherein R<sup>1</sup> and R<sup>2</sup> are not both H,

or the radicals R<sup>1</sup> and R<sup>2</sup> together form a ring and represent CH<sub>2</sub>CH<sub>2</sub>OCH<sub>2</sub>CH<sub>2</sub>, CH<sub>2</sub>CH<sub>2</sub>NR<sup>5</sup>CH<sub>2</sub>CH<sub>2</sub> or (CH<sub>2</sub>)<sub>3-6</sub>,

where R<sup>5</sup> represents H; saturated or unsaturated, branched or unbranched, singly or multiply substituted or unsubstituted C<sub>1-8</sub>-alkyl.

13. A substituted 4-aminocyclohexanol compound according to claim 5 wherein:

$R^1$  and  $R^2$  independently of one another represent H; saturated or unsaturated, branched or unbranched, singly or multiply substituted or unsubstituted  $C_{1-8}$ -alkyl; wherein  $R^1$  and  $R^2$  are not both H,

or the radicals  $R^1$  and  $R^2$  together form a ring and represent  $CH_2CH_2OCH_2CH_2$ ,  $CH_2CH_2NR^5CH_2CH_2$  or  $(CH_2)_{3-6}$ ,

where  $R^5$  represents H; saturated or unsaturated, branched or unbranched, singly or multiply substituted or unsubstituted  $C_{1-8}$ -alkyl.

14. A substituted 4-aminocyclohexanol compound according to claim 8 wherein:

$R^1$  and  $R^2$  independently of one another represent H; saturated or unsaturated, branched or unbranched, singly or multiply substituted or unsubstituted  $C_{1-8}$ -alkyl; wherein  $R^1$  and  $R^2$  are not both H,

or the radicals  $R^1$  and  $R^2$  together form a ring and represent  $CH_2CH_2OCH_2CH_2$ ,  $CH_2CH_2NR^5CH_2CH_2$  or  $(CH_2)_{3-6}$ ,

where  $R^5$  represents H; saturated or unsaturated, branched or unbranched, singly or multiply substituted or unsubstituted  $C_{1-8}$ -alkyl.

15. A substituted 4-aminocyclohexanol compound according to claim 9 wherein:

$R^1$  and  $R^2$  independently of one another represent H; saturated or unsaturated, branched or unbranched, singly or multiply substituted or unsubstituted  $C_{1-8}$ -alkyl; wherein  $R^1$  and  $R^2$  are not both H,

or the radicals  $R^1$  and  $R^2$  together form a ring and represent  $CH_2CH_2OCH_2CH_2$ ,  $CH_2CH_2NR^5CH_2CH_2$  or  $(CH_2)_{3-6}$ ,

where  $R^5$  represents H; saturated or unsaturated, branched or unbranched, singly or multiply substituted or unsubstituted  $C_{1-8}$ -alkyl.

16. A substituted 4-aminocyclohexanol compound according to claim 10 wherein:

$R^1$  and  $R^2$  independently of one another represent H; saturated or unsaturated, branched or unbranched, singly or multiply substituted or unsubstituted  $C_{1-8}$ -alkyl; wherein  $R^1$  and  $R^2$  are not both H,

or the radicals  $R^1$  and  $R^2$  together form a ring and represent  $CH_2CH_2OCH_2CH_2$ ,  $CH_2CH_2NR^5CH_2CH_2$  or  $(CH_2)_{3-6}$ ,

where  $R^5$  represents H; saturated or unsaturated, branched or unbranched, singly or multiply substituted or unsubstituted  $C_{1-8}$ -alkyl.

17. A substituted 4-aminocyclohexanol compound according to claim 3, wherein

$R^1$  and  $R^2$  independently of one another represent H; saturated or unsaturated, branched or unbranched, singly or multiply substituted or unsubstituted  $C_{1-8}$ -alkyl; wherein  $R^1$  and  $R^2$  are not both H.

18. A substituted 4-aminocyclohexanol compound according to claim 7, wherein

$R^1$  and  $R^2$  independently of one another represent H; saturated or unsaturated, branched or unbranched, singly or multiply substituted or unsubstituted  $C_{1-8}$ -

alkyl; wherein  $R^1$  and  $R^2$  are not both H.

19. A substituted 4-aminocyclohexanol compound according to claim 2, wherein

$R^1$  and  $R^2$  together form a ring and represent  $CH_2CH_2OCH_2CH_2$ ,  $CH_2CH_2NR^5CH_2CH_2$  or  $(CH_2)_{3-6}$ ,

wherein  $R^5$  represents H; saturated or unsaturated, branched or unbranched, singly or multiply substituted or unsubstituted  $C_{1-8}$ -alkyl.

20. A substituted 4-aminocyclohexanol compound according to claim 6, wherein

$R^1$  and  $R^2$  together form a ring and represent  $CH_2CH_2OCH_2CH_2$ ,  $CH_2CH_2NR^5CH_2CH_2$  or  $(CH_2)_{3-6}$ ,

wherein  $R^5$  represents H; saturated or unsaturated, branched or unbranched, singly or multiply substituted or unsubstituted  $C_{1-8}$ -alkyl.

21. A substituted 4-aminocyclohexanol compound according to claim 1, wherein

$R^3$  represents unsubstituted or singly or multiply substituted phenyl, naphthyl, anthracenyl, thiophenyl, benzothiophenyl, pyridyl, furyl, benzofuranyl, benzodioxolanyl, indolyl, indanyl, benzodioxanyl, pyrrolyl, pyrimidyl or pyrazinyl.

22. A substituted 4-aminocyclohexanol compound according to claim 2, wherein

R<sup>3</sup> represents unsubstituted or singly or multiply substituted phenyl, naphthyl, anthracenyl, thiophenyl, benzothiophenyl, pyridyl, furyl, benzofuranyl, benzodioxolanyl, indolyl, indanyl, benzodioxanyl, pyrrolyl, pyrimidyl or pyrazinyl.

23. A substituted 4-aminocyclohexanol compound according to claim 3, wherein

R<sup>3</sup> represents unsubstituted or singly or multiply substituted phenyl, naphthyl, anthracenyl, thiophenyl, benzothiophenyl, pyridyl, furyl, benzofuranyl, benzodioxolanyl, indolyl, indanyl, benzodioxanyl, pyrrolyl, pyrimidyl or pyrazinyl.

24. A substituted 4-aminocyclohexanol compound according to claim 8, wherein

R<sup>3</sup> represents unsubstituted or singly or multiply substituted phenyl, naphthyl, anthracenyl, thiophenyl, benzothiophenyl, pyridyl, furyl, benzofuranyl, benzodioxolanyl, indolyl, indanyl, benzodioxanyl, pyrrolyl, pyrimidyl or pyrazinyl.

25. A substituted 4-aminocyclohexanol compound according to claim 9, wherein

R<sup>3</sup> represents unsubstituted or singly or multiply substituted phenyl, naphthyl, anthracenyl, thiophenyl, benzothiophenyl, pyridyl, furyl, benzofuranyl, benzodioxolanyl, indolyl, indanyl, benzodioxanyl, pyrrolyl, pyrimidyl or pyrazinyl.

26. A substituted 4-aminocyclohexanol compound according to claim 10, wherein

R<sup>3</sup> represents unsubstituted or singly or multiply substituted phenyl, naphthyl, anthracenyl, thiophenyl, benzothiophenyl, pyridyl, furyl, benzofuranyl, benzodioxolanyl, indolyl, indanyl, benzodioxanyl, pyrrolyl, pyrimidyl or pyrazinyl.

27. A substituted 4-aminocyclohexanol compound according to claim 4, wherein

R<sup>3</sup> represents unsubstituted or singly or multiply substituted thiophenyl, benzothiophenyl, pyridyl, furyl, benzofuranyl, benzodioxolanyl, indolyl, indanyl, benzodioxanyl, pyrrolyl, pyrimidyl or pyrazinyl.

28. A substituted 4-aminocyclohexanol compound according to claim 7, wherein

R<sup>3</sup> represents unsubstituted or singly or multiply substituted thiophenyl, benzothiophenyl, pyridyl, furyl, benzofuranyl, benzodioxolanyl, indolyl, indanyl, benzodioxanyl, pyrrolyl, pyrimidyl or pyrazinyl.

29. A substituted 4-aminocyclohexanol compound according to claim 5, wherein R<sup>3</sup> represents phenyl, naphthyl or anthracenyl.

30. A substituted 4-aminocyclohexanol compound according to claim 6, wherein R<sup>3</sup> represents phenyl, naphthyl or anthracenyl.

31. A substituted 4-aminocyclohexanol compound according to claim 1, wherein

R<sup>4</sup> represents unsubstituted or singly or multiply substituted C<sub>3-8</sub>-cycloalkyl, aryl or heteroaryl; or -R<sup>8</sup>-L-R<sup>9</sup>.

32. A substituted 4-aminocyclohexanol compound according to claim 31, wherein

R<sup>8</sup> represents unsubstituted or singly or multiply substituted indolyl, naphthyl, benzofuranyl, benzothiophenyl, indanyl, benzodioxanyl, benzodioxolanyl, acenaphthyl, carbazolyl, phenyl, thiophenyl, furyl, pyridyl, pyrrolyl, pyrazinyl or pyrimidyl, fluorenyl, fluoranthenyl, benzothiazolyl, benzotriazolyl or benzo[1,2,5]thiazolyl or 1,2-dihydroacenaphthenyl, pyridinyl, furanyl, benzofuranyl, pyrazolinonyl, oxopyrazolinonyl, pyrimidinyl, quinolinyl, isoquinolinyl, phthalazinyl or quinazolinyl;

L represents -C(O)-NH-, -NH-C(O)-, -C(O)-O-, -O-C(O)-, -O-, -S- or -S(O)<sub>2</sub>-;

or R<sup>9</sup> represents unsubstituted or singly or multiply substituted indolyl, naphthyl, benzofuranyl, benzothiophenyl, indanyl, benzodioxanyl, benzodioxolanyl, acenaphthyl, carbazolyl, phenyl, thiophenyl, furyl, pyridyl, pyrrolyl, pyrazinyl or pyrimidyl, fluorenyl, fluoranthenyl, benzothiazolyl, benzotriazolyl or benzo[1,2,5]thiazolyl or 1,2-dihydroacenaphthenyl, pyridinyl, furanyl, benzofuranyl, pyrazolinonyl, oxopyrazolinonyl, pyrimidinyl, quinolinyl, isoquinolinyl, phthalazinyl or quinazolinyl.

33. A substituted 4-aminocyclohexanol compound according to claim 2, wherein

R<sup>4</sup> represents unsubstituted or singly or multiply substituted C<sub>3-8</sub>-cycloalkyl, aryl

or heteroaryl; or  $-R^8-L-R^9$ .

34. A substituted 4-aminocyclohexanol compound according to claim 33, wherein

$R^8$  represents unsubstituted or singly or multiply substituted indolyl, naphthyl, benzofuranyl, benzothiophenyl, indanyl, benzodioxanyl, benzodioxolanyl, acenaphthyl, carbazolyl, phenyl, thiophenyl, furyl, pyridyl, pyrrolyl, pyrazinyl or pyrimidyl, fluorenyl, fluoranthenyl, benzothiazolyl, benzotriazolyl or benzo[1,2,5]thiazolyl or 1,2-dihydroacenaphthenyl, pyridinyl, furanyl, benzofuranyl, pyrazolinonyl, oxopyrazolinonyl, pyrimidinyl, quinolinyl, isoquinolinyl, phthalazinyl or quinazolinyl;

L represents  $-C(O)-NH-$ ,  $-NH-C(O)-$ ,  $-C(O)-O-$ ,  $-O-C(O)-$ ,  $-O-$ ,  $-S-$  or  $-S(O)_2-$ ;

or  $R^9$  represents unsubstituted or singly or multiply substituted indolyl, naphthyl, benzofuranyl, benzothiophenyl, indanyl, benzodioxanyl, benzodioxolanyl, acenaphthyl, carbazolyl, phenyl, thiophenyl, furyl, pyridyl, pyrrolyl, pyrazinyl or pyrimidyl, fluorenyl, fluoranthenyl, benzothiazolyl, benzotriazolyl or benzo[1,2,5]thiazolyl or 1,2-dihydroacenaphthenyl, pyridinyl, furanyl, benzofuranyl, pyrazolinonyl, oxopyrazolinonyl, pyrimidinyl, quinolinyl, isoquinolinyl, phthalazinyl or quinazolinyl.

35. A substituted 4-aminocyclohexanol compound according to claim 3, wherein

$R^4$  represents unsubstituted or singly or multiply substituted  $C_{3-8}$ -cycloalkyl, aryl or heteroaryl; or  $-R^8-L-R^9$ .

36. A substituted 4-aminocyclohexanol compound according to claim 35,



wherein

R<sup>8</sup> represents unsubstituted or singly or multiply substituted indolyl, naphthyl, benzofuranyl, benzothiophenyl, indanyl, benzodioxanyl, benzodioxolanyl, acenaphthyl, carbazolyl, phenyl, thiophenyl, furyl, pyridyl, pyrrolyl, pyrazinyl or pyrimidyl, fluorenyl, fluoranthenyl, benzothiazolyl, benzotriazolyl or benzo[1,2,5]thiazolyl or 1,2-dihydroacenaphthenyl, pyridinyl, furanyl, benzofuranyl, pyrazolinonyl, oxopyrazolinonyl, pyrimidinyl, quinolinyl, isoquinolinyl, phthalazinyl or quinazolinyl;

L represents -C(O)-NH-, -NH-C(O)-, -C(O)-O-, -O-C(O)-, -O-, -S- or -S(O)<sub>2</sub>;

or R<sup>9</sup> represents unsubstituted or singly or multiply substituted indolyl, naphthyl, benzofuranyl, benzothiophenyl, indanyl, benzodioxanyl, benzodioxolanyl, acenaphthyl, carbazolyl, phenyl, thiophenyl, furyl, pyridyl, pyrrolyl, pyrazinyl or pyrimidyl, fluorenyl, fluoranthenyl, benzothiazolyl, benzotriazolyl or benzo[1,2,5]thiazolyl or 1,2-dihydroacenaphthenyl, pyridinyl, furanyl, benzofuranyl, pyrazolinonyl, oxopyrazolinonyl, pyrimidinyl, quinolinyl, isoquinolinyl, phthalazinyl or quinazolinyl.

37. A substituted 4-aminocyclohexanol compound according to claim 4, wherein

R<sup>4</sup> represents unsubstituted or singly or multiply substituted C<sub>3-8</sub>-cycloalkyl, aryl or heteroaryl; or -R<sup>8</sup>-L-R<sup>9</sup>.

38. A substituted 4-aminocyclohexanol compound according to claim 37, wherein

R<sup>8</sup> represents unsubstituted or singly or multiply substituted indolyl, naphthyl, benzofuranyl, benzothiophenyl, indanyl, benzodioxanyl, benzodioxolanyl,

acenaphthyl, carbazolyl, phenyl, thiophenyl, furyl, pyridyl, pyrrolyl, pyrazinyl or pyrimidyl, fluorenyl, fluoranthenyl, benzothiazolyl, benzotriazolyl or benzo[1,2,5]thiazolyl or 1,2-dihydroacenaphthenyl, pyridinyl, furanyl, benzofuranyl, pyrazolinonyl, oxopyrazolinonyl, pyrimidinyl, quinolinyl, isoquinolinyl, phthalazinyl or quinazolinyl;

L represents -C(O)-NH-, -NH-C(O)-, -C(O)-O-, -O-C(O)-, -O-, -S- or -S(O)<sub>2</sub>;

or R<sup>9</sup> represents unsubstituted or singly or multiply substituted indolyl, naphthyl, benzofuranyl, benzothiophenyl, indanyl, benzodioxanyl, benzodioxolanyl, acenaphthyl, carbazolyl, phenyl, thiophenyl, furyl, pyridyl, pyrrolyl, pyrazinyl or pyrimidyl, fluorenyl, fluoranthenyl, benzothiazolyl, benzotriazolyl or benzo[1,2,5]thiazolyl or 1,2-dihydroacenaphthenyl, pyridinyl, furanyl, benzofuranyl, pyrazolinonyl, oxopyrazolinonyl, pyrimidinyl, quinolinyl, isoquinolinyl, phthalazinyl or quinazolinyl.

39. A substituted 4-aminocyclohexanol compound according to claim 5, wherein

R<sup>4</sup> represents unsubstituted or singly or multiply substituted C<sub>3-8</sub>-cycloalkyl, aryl or heteroaryl; or -R<sup>8</sup>-L-R<sup>9</sup>.

40. A substituted 4-aminocyclohexanol compound according to claim 39, wherein

R<sup>8</sup> represents unsubstituted or singly or multiply substituted indolyl, naphthyl, benzofuranyl, benzothiophenyl, indanyl, benzodioxanyl, benzodioxolanyl, acenaphthyl, carbazolyl, phenyl, thiophenyl, furyl, pyridyl, pyrrolyl, pyrazinyl or pyrimidyl, fluorenyl, fluoranthenyl, benzothiazolyl, benzotriazolyl or benzo[1,2,5]thiazolyl or 1,2-dihydroacenaphthenyl, pyridinyl, furanyl,

benzofuranyl, pyrazolinonyl, oxopyrazolinonyl, pyrimidinyl, quinolinyl, isoquinolinyl, phthalazinyl or quinazolinyl;

L represents -C(O)-NH-, -NH-C(O)-, -C(O)-O-, -O-C(O)-, -O-, -S- or -S(O)<sub>2</sub>;

or R<sup>9</sup> represents unsubstituted or singly or multiply substituted indolyl, naphthyl, benzofuranyl, benzothiophenyl, indanyl, benzodioxanyl, benzodioxolanyl, acenaphthyl, carbazolyl, phenyl, thiophenyl, furyl, pyridyl, pyrrolyl, pyrazinyl or pyrimidyl, fluorenyl, fluoranthenyl, benzothiazolyl, benzotriazolyl or benzo[1,2,5]thiazolyl or 1,2-dihydroacenaphthenyl, pyridinyl, furanyl, benzofuranyl, pyrazolinonyl, oxopyrazolinonyl, pyrimidinyl, quinolinyl, isoquinolinyl, phthalazinyl or quinazolinyl.

41. A substituted 4-aminocyclohexanol compound according to claim 6, wherein

R<sup>4</sup> represents unsubstituted or singly or multiply substituted C<sub>3-8</sub>-cycloalkyl, aryl or heteroaryl; or -R<sup>8</sup>-L-R<sup>9</sup>.

42. A substituted 4-aminocyclohexanol compound according to claim 41, wherein

R<sup>8</sup> represents unsubstituted or singly or multiply substituted indolyl, naphthyl, benzofuranyl, benzothiophenyl, indanyl, benzodioxanyl, benzodioxolanyl, acenaphthyl, carbazolyl, phenyl, thiophenyl, furyl, pyridyl, pyrrolyl, pyrazinyl or pyrimidyl, fluorenyl, fluoranthenyl, benzothiazolyl, benzotriazolyl or benzo[1,2,5]thiazolyl or 1,2-dihydroacenaphthenyl, pyridinyl, furanyl, benzofuranyl, pyrazolinonyl, oxopyrazolinonyl, pyrimidinyl, quinolinyl, isoquinolinyl, phthalazinyl or quinazolinyl;

L represents -C(O)-NH-, -NH-C(O)-, -C(O)-O-, -O-C(O)-, -O-, -S- or -S(O)<sub>2</sub>;

or R<sup>9</sup> represents unsubstituted or singly or multiply substituted indolyl, naphthyl, benzofuranyl, benzothiophenyl, indanyl, benzodioxanyl, benzodioxolanyl, acenaphthyl, carbazolyl, phenyl, thiophenyl, furyl, pyridyl, pyrrolyl, pyrazinyl or pyrimidyl, fluorenyl, fluoranthenyl, benzothiazolyl, benzotriazolyl or benzo[1,2,5]thiazolyl or 1,2-dihydroacenaphthenyl, pyridinyl, furanyl, benzofuranyl, pyrazolinonyl, oxopyrazolinonyl, pyrimidinyl, quinolinyl, isoquinolinyl, phthalazinyl or quinazolinyl.

43. A substituted 4-aminocyclohexanol compound according to claim 7, wherein

R<sup>4</sup> represents unsubstituted or singly or multiply substituted C<sub>3-8</sub>-cycloalkyl, aryl or heteroaryl; or -R<sup>8</sup>-L-R<sup>9</sup>.

44. A substituted 4-aminocyclohexanol compound according to claim 43, wherein

R<sup>8</sup> represents unsubstituted or singly or multiply substituted indolyl, naphthyl, benzofuranyl, benzothiophenyl, indanyl, benzodioxanyl, benzodioxolanyl, acenaphthyl, carbazolyl, phenyl, thiophenyl, furyl, pyridyl, pyrrolyl, pyrazinyl or pyrimidyl, fluorenyl, fluoranthenyl, benzothiazolyl, benzotriazolyl or benzo[1,2,5]thiazolyl or 1,2-dihydroacenaphthenyl, pyridinyl, furanyl, benzofuranyl, pyrazolinonyl, oxopyrazolinonyl, pyrimidinyl, quinolinyl, isoquinolinyl, phthalazinyl or quinazolinyl;

L represents -C(O)-NH-, -NH-C(O)-, -C(O)-O-, -O-C(O)-, -O-, -S- or -S(O)<sub>2</sub>-;

or R<sup>9</sup> represents unsubstituted or singly or multiply substituted indolyl, naphthyl, benzofuranyl, benzothiophenyl, indanyl, benzodioxanyl, benzodioxolanyl, acenaphthyl, carbazolyl, phenyl, thiophenyl, furyl, pyridyl,

pyrrolyl, pyrazinyl or pyrimidyl, fluorenyl, fluoranthenyl, benzothiazolyl, benzotriazolyl or benzo[1,2,5]thiazolyl or 1,2-dihydroacenaphthenyl, pyridinyl, furanyl, benzofuranyl, pyrazolinonyl, oxopyrazolinonyl, pyrimidinyl, quinolinyl, isoquinolinyl, phthalazinyl or quinazolinyl.

45. A substituted 4-aminocyclohexanol compound according to claim 1, wherein

R<sup>4</sup> represents -CHR<sup>6</sup>R<sup>7</sup>, -CHR<sup>6</sup>-CH<sub>2</sub>R<sup>7</sup>, -CHR<sup>6</sup>-CH<sub>2</sub>-CH<sub>2</sub>R<sup>7</sup>, -CHR<sup>6</sup>-CH<sub>2</sub>-CH<sub>2</sub>-CH<sub>2</sub>R<sup>7</sup>, -C(Y)R<sup>7</sup>, -C(Y)-CH<sub>2</sub>R<sup>7</sup>, -C(Y)-CH<sub>2</sub>-CH<sub>2</sub>R<sup>7</sup> or -C(Y)-CH<sub>2</sub>-CH<sub>2</sub>-CH<sub>2</sub>R<sup>7</sup>.

46. A substituted 4-aminocyclohexanol compound according to claim 45, wherein

R<sup>6</sup> represents H; saturated or unsaturated, branched or unbranched, singly or multiply substituted or unsubstituted C<sub>1-4</sub>-alkyl; or saturated or unsaturated, branched or unbranched, singly or multiply substituted or unsubstituted C(O)O-C<sub>1-4</sub>-alkyl.

47. A substituted 4-aminocyclohexanol compound according to claim 45, wherein

R<sup>7</sup> represents unsubstituted or singly or multiply substituted C<sub>3-8</sub>-cycloalkyl, aryl or heteroaryl.

48. A substituted 4-aminocyclohexanol compound according to claim 2, wherein

R<sup>4</sup> represents -CHR<sup>6</sup>R<sup>7</sup>, -CHR<sup>6</sup>-CH<sub>2</sub>R<sup>7</sup>, -CHR<sup>6</sup>-CH<sub>2</sub>-CH<sub>2</sub>R<sup>7</sup>, -CHR<sup>6</sup>-CH<sub>2</sub>-CH<sub>2</sub>-

$\text{CH}_2\text{R}^7$ ,  $-\text{C}(\text{Y})\text{R}^7$ ,  $-\text{C}(\text{Y})-\text{CH}_2\text{R}^7$ ,  $-\text{C}(\text{Y})-\text{CH}_2-\text{CH}_2\text{R}^7$  or  $-\text{C}(\text{Y})-\text{CH}_2-\text{CH}_2-\text{CH}_2\text{R}^7$ .

49. A substituted 4-aminocyclohexanol compound according to claim 48, wherein

$\text{R}^6$  represents H; saturated or unsaturated, branched or unbranched, singly or multiply substituted or unsubstituted  $\text{C}_{1-4}$ -alkyl; or saturated or unsaturated, branched or unbranched, singly or multiply substituted or unsubstituted  $\text{C}(\text{O})\text{O}-\text{C}_{1-4}$ -alkyl.

50. A substituted 4-aminocyclohexanol compound according to claim 48, wherein

$\text{R}^7$  represents unsubstituted or singly or multiply substituted  $\text{C}_{3-8}$ -cycloalkyl, aryl or heteroaryl.

51. A substituted 4-aminocyclohexanol compound according to claim 3, wherein

$\text{R}^4$  represents  $-\text{CHR}^6\text{R}^7$ ,  $-\text{CHR}^6-\text{CH}_2\text{R}^7$ ,  $-\text{CHR}^6-\text{CH}_2-\text{CH}_2\text{R}^7$ ,  $-\text{CHR}^6-\text{CH}_2-\text{CH}_2-\text{CH}_2\text{R}^7$ ,  $-\text{C}(\text{Y})\text{R}^7$ ,  $-\text{C}(\text{Y})-\text{CH}_2\text{R}^7$ ,  $-\text{C}(\text{Y})-\text{CH}_2-\text{CH}_2\text{R}^7$  or  $-\text{C}(\text{Y})-\text{CH}_2-\text{CH}_2-\text{CH}_2\text{R}^7$ .

52. A substituted 4-aminocyclohexanol compound according to claim 51, wherein

$\text{R}^6$  represents H; saturated or unsaturated, branched or unbranched, singly or multiply substituted or unsubstituted  $\text{C}_{1-4}$ -alkyl; or saturated or unsaturated, branched or unbranched, singly or multiply substituted or unsubstituted  $\text{C}(\text{O})\text{O}-\text{C}_{1-4}$ -alkyl.

53. A substituted 4-aminocyclohexanol compound according to claim 51, wherein

R<sup>7</sup> represents unsubstituted or singly or multiply substituted C<sub>3-8</sub>-cycloalkyl, aryl or heteroaryl.

54. A substituted 4-aminocyclohexanol compound according to claim 4, wherein

R<sup>4</sup> represents -CHR<sup>6</sup>R<sup>7</sup>, -CHR<sup>6</sup>-CH<sub>2</sub>R<sup>7</sup>, -CHR<sup>6</sup>-CH<sub>2</sub>-CH<sub>2</sub>R<sup>7</sup>, -CHR<sup>6</sup>-CH<sub>2</sub>-CH<sub>2</sub>-CH<sub>2</sub>R<sup>7</sup>, -C(Y)R<sup>7</sup>, -C(Y)-CH<sub>2</sub>R<sup>7</sup>, -C(Y)-CH<sub>2</sub>-CH<sub>2</sub>R<sup>7</sup> or -C(Y)-CH<sub>2</sub>-CH<sub>2</sub>-CH<sub>2</sub>R<sup>7</sup>.

55. A substituted 4-aminocyclohexanol compound according to claim 54, wherein

R<sup>6</sup> represents H; saturated or unsaturated, branched or unbranched, singly or multiply substituted or unsubstituted C<sub>1-4</sub>-alkyl; or saturated or unsaturated, branched or unbranched, singly or multiply substituted or unsubstituted C(O)O-C<sub>1-4</sub>-alkyl.

56. A substituted 4-aminocyclohexanol compound according to claim 54, wherein

R<sup>7</sup> represents unsubstituted or singly or multiply substituted C<sub>3-8</sub>-cycloalkyl, aryl or heteroaryl.

57. A substituted 4-aminocyclohexanol compound according to claim 5, wherein

R<sup>4</sup> represents -CHR<sup>6</sup>R<sup>7</sup>, -CHR<sup>6</sup>-CH<sub>2</sub>R<sup>7</sup>, -CHR<sup>6</sup>-CH<sub>2</sub>-CH<sub>2</sub>R<sup>7</sup>, -CHR<sup>6</sup>-CH<sub>2</sub>-CH<sub>2</sub>-CH<sub>2</sub>R<sup>7</sup>, -C(Y)R<sup>7</sup>, -C(Y)-CH<sub>2</sub>R<sup>7</sup>, -C(Y)-CH<sub>2</sub>-CH<sub>2</sub>R<sup>7</sup> or -C(Y)-CH<sub>2</sub>-CH<sub>2</sub>-CH<sub>2</sub>R<sup>7</sup>.

58. A substituted 4-aminocyclohexanol compound according to claim 57, wherein

R<sup>6</sup> represents H; saturated or unsaturated, branched or unbranched, singly or multiply substituted or unsubstituted C<sub>1-4</sub>-alkyl; or saturated or unsaturated, branched or unbranched, singly or multiply substituted or unsubstituted C(O)O-C<sub>1-4</sub>-alkyl.

59. A substituted 4-aminocyclohexanol compound according to claim 57, wherein

R<sup>7</sup> represents unsubstituted or singly or multiply substituted C<sub>3-8</sub>-cycloalkyl, aryl or heteroaryl.

60. A substituted 4-aminocyclohexanol compound according to claim 6, wherein

R<sup>4</sup> represents -CHR<sup>6</sup>R<sup>7</sup>, -CHR<sup>6</sup>-CH<sub>2</sub>R<sup>7</sup>, -CHR<sup>6</sup>-CH<sub>2</sub>-CH<sub>2</sub>R<sup>7</sup>, -CHR<sup>6</sup>-CH<sub>2</sub>-CH<sub>2</sub>-CH<sub>2</sub>R<sup>7</sup>, -C(Y)R<sup>7</sup>, -C(Y)-CH<sub>2</sub>R<sup>7</sup>, -C(Y)-CH<sub>2</sub>-CH<sub>2</sub>R<sup>7</sup> or -C(Y)-CH<sub>2</sub>-CH<sub>2</sub>-CH<sub>2</sub>R<sup>7</sup>.

61. A substituted 4-aminocyclohexanol compound according to claim 60, wherein

R<sup>6</sup> represents H; saturated or unsaturated, branched or unbranched, singly or multiply substituted or unsubstituted C<sub>1-4</sub>-alkyl; or saturated or unsaturated, branched or unbranched, singly or multiply substituted or unsubstituted C(O)O-



C<sub>1-4</sub>-alkyl.

62. A substituted 4-aminocyclohexanol compound according to claim 60, wherein

R<sup>7</sup> represents unsubstituted or singly or multiply substituted C<sub>3-8</sub>-cycloalkyl, aryl or heteroaryl.

63. A substituted 4-aminocyclohexanol compound according to claim 7, wherein

R<sup>4</sup> represents -CHR<sup>6</sup>R<sup>7</sup>, -CHR<sup>6</sup>-CH<sub>2</sub>R<sup>7</sup>, -CHR<sup>6</sup>-CH<sub>2</sub>-CH<sub>2</sub>R<sup>7</sup>, -CHR<sup>6</sup>-CH<sub>2</sub>-CH<sub>2</sub>-CH<sub>2</sub>R<sup>7</sup>, -C(Y)R<sup>7</sup>, -C(Y)-CH<sub>2</sub>R<sup>7</sup>, -C(Y)-CH<sub>2</sub>-CH<sub>2</sub>R<sup>7</sup> or -C(Y)-CH<sub>2</sub>-CH<sub>2</sub>-CH<sub>2</sub>R<sup>7</sup>.

64. A substituted 4-aminocyclohexanol compound according to claim 63, wherein

R<sup>6</sup> represents H; saturated or unsaturated, branched or unbranched, singly or multiply substituted or unsubstituted C<sub>1-4</sub>-alkyl; or saturated or unsaturated, branched or unbranched, singly or multiply substituted or unsubstituted C(O)O-C<sub>1-4</sub>-alkyl.

65. A substituted 4-aminocyclohexanol compound according to claim 63, wherein

R<sup>7</sup> represents unsubstituted or singly or multiply substituted C<sub>3-8</sub>-cycloalkyl, aryl or heteroaryl.

66. A substituted 4-aminocyclohexanol compound according to claim 8,

wherein

R<sup>4</sup> represents unsubstituted or singly or multiply substituted heteroaryl; or -CHR<sup>6</sup>R<sup>7</sup>, -CHR<sup>6</sup>-CH<sub>2</sub>R<sup>7</sup>, -CHR<sup>6</sup>-CH<sub>2</sub>-CH<sub>2</sub>R<sup>7</sup>, -CHR<sup>6</sup>-CH<sub>2</sub>-CH<sub>2</sub>-CH<sub>2</sub>R<sup>7</sup>, -C(Y)R<sup>7</sup>, -C(Y)-CH<sub>2</sub>R<sup>7</sup>, -C(Y)-CH<sub>2</sub>-CH<sub>2</sub>R<sup>7</sup> or -C(Y)-CH<sub>2</sub>-CH<sub>2</sub>-CH<sub>2</sub>R<sup>7</sup>; or -R<sup>8</sup>-L-R<sup>9</sup>

where Y = H<sub>2</sub>.

67. A substituted 4-aminocyclohexanol compound according to claim 66, wherein

R<sup>6</sup> represents H, saturated or unsaturated, branched or unbranched, singly or multiply substituted or unsubstituted C<sub>1-4</sub>-alkyl;

or

R<sup>7</sup> represents unsubstituted or singly or multiply substituted indolyl, benzofuranyl, benzothiophenyl, indanyl, benzodioxanyl, benzodioxolanyl, acenaphthyl, carbazolyl, thiophenyl, furyl, pyridyl, pyrrolyl, pyrazinyl or pyrimidyl, fluorenyl, fluoranthenyl, benzothiazolyl, benzotriazolyl or benzo[1,2,5]thiazolyl or 1,2-dihydroacenaphthenyl, pyridinyl, furanyl, benzofuranyl, pyrazolinonyl, oxopyrazolinonyl, pyrimidinyl, quinolinyl, isoquinolinyl, phthalazinyl or quinazolinyl.

68. A substituted 4-aminocyclohexanol compound according to claim 66, wherein

R<sup>8</sup> represents unsubstituted or singly or multiply substituted indolyl, naphthyl, benzofuranyl, benzothiophenyl, indanyl, benzodioxanyl, benzodioxolanyl, acenaphthyl, carbazolyl, phenyl, thiophenyl, furyl, pyridyl, pyrrolyl, pyrazinyl or pyrimidyl, fluorenyl, fluoranthenyl, benzothiazolyl, benzotriazolyl or benzo[1,2,5]thiazolyl or 1,2-dihydroacenaphthenyl, pyridinyl, furanyl,

benzofuranyl, pyrazolinonyl, oxopyrazolinonyl, pyrimidinyl, quinolinyl, isoquinolinyl, phthalazinyl or quinazolinyl;

or R<sup>9</sup> represents unsubstituted or singly or multiply substituted indolyl, naphthyl, benzofuranyl, benzothiophenyl, indanyl, benzodioxanyl, benzodioxolanyl, acenaphthyl, carbazolyl, phenyl, thiophenyl, furyl, pyridyl, pyrrolyl, pyrazinyl or pyrimidyl, fluorenyl, fluoranthenyl, benzothiazolyl, benzotriazolyl or benzo[1,2,5]thiazolyl or 1,2-dihydroacenaphthenyl, pyridinyl, furanyl, benzofuranyl, pyrazolinonyl, oxopyrazolinonyl, pyrimidinyl, quinolinyl, isoquinolinyl, phthalazinyl or quinazolinyl.

69. A substituted 4-aminocyclohexanol compound according to claim 9, wherein

R<sup>4</sup> represents -CHR<sup>6</sup>R<sup>7</sup>, -CHR<sup>6</sup>-CH<sub>2</sub>R<sup>7</sup> or -CHR<sup>6</sup>-CH<sub>2</sub>-CH<sub>2</sub>R<sup>7</sup>.

70. A substituted 4-aminocyclohexanol compound according to claim 69, wherein

R<sup>6</sup> represents saturated or unsaturated, branched or unbranched, singly or multiply substituted or unsubstituted C(O)O-C<sub>1-4</sub>-alkyl.

or

R<sup>7</sup> represents unsubstituted or singly or multiply substituted C<sub>3-8</sub>-cycloalkyl, aryl or heteroaryl.

71. A substituted 4-aminocyclohexanol compound according to claim 10, wherein

R<sup>4</sup> represents -C(Y)R<sup>7</sup>, -C(Y)-CH<sub>2</sub>R<sup>7</sup>, -C(Y)CH<sub>2</sub>-CH<sub>2</sub>R<sup>7</sup> or -C(Y)-CH<sub>2</sub>-CH<sub>2</sub>-CH<sub>2</sub>R<sup>7</sup>

where Y = O.

72. A substituted 4-aminocyclohexanol compound according to claim 71, wherein

R<sup>7</sup> represents unsubstituted or singly or multiply substituted C<sub>3-8</sub>-cycloalkyl, aryl or heteroaryl.

73. A substituted 4-aminocyclohexanol compound according to claim 1, wherein said compound is selected from the group consisting of:

- 4-dimethylamino-1-(1-methyl-1H-indol-2-yl)-4-phenylcyclohexanol
- 1-benzo[b]thiophen-2-yl-4-dimethylamino-4-phenylcyclohexanol
- 1-benzo[b]thiophen-3-yl-4-dimethylamino-4-phenylcyclohexanol
- 1-(1-benzenesulphonyl-1H-indol-2-yl)-4-dimethylamino-4-phenylcyclohexanol
- 1-benzofuran-2-yl-4-dimethylamino-4-phenylcyclohexanol; and
- 1-benzothiazol-2-yl-4-dimethylamino-4-phenylcyclohexanol, or

a salt thereof with a physiologically tolerated acid.

74. A substituted 4-aminocyclohexanol compound according to claim 2, wherein said compound is selected from the group consisting of:

- 4-dimethylamino-1-(1-methyl-1H-indol-2-yl)-4-phenylcyclohexanol
- 1-benzo[b]thiophen-2-yl-4-dimethylamino-4-phenylcyclohexanol
- 1-benzo[b]thiophen-3-yl-4-dimethylamino-4-phenylcyclohexanol

- 1-(1-benzenesulphonyl-1H-indol-2-yl)-4-dimethylamino-4-phenylcyclohexanol
- 1-benzofuran-2-yl-4-dimethylamino-4-phenylcyclohexanol; and
- 1-benzothiazol-2-yl-4-dimethylamino-4-phenylcyclohexanol, or  
a salt thereof with a physiologically tolerated acid.

75. A substituted 4-aminocyclohexanol compound according to claim 3, wherein said compound is selected from the group consisting of:

- 4-dimethylamino-1-(1-methyl-1H-indol-2-yl)-4-phenylcyclohexanol
- 1-benzo[b]thiophen-2-yl-4-dimethylamino-4-phenylcyclohexanol
- 1-benzo[b]thiophen-3-yl-4-dimethylamino-4-phenylcyclohexanol
- 1-(1-benzenesulphonyl-1H-indol-2-yl)-4-dimethylamino-4-phenylcyclohexanol
- 1-benzofuran-2-yl-4-dimethylamino-4-phenylcyclohexanol; and
- 1-benzothiazol-2-yl-4-dimethylamino-4-phenylcyclohexanol, or  
a salt thereof with a physiologically tolerated acid.

76. A substituted 4-aminocyclohexanol compound according to claim 4, wherein said compound is selected from the group consisting of:

- 4-dimethylamino-1-(1-methyl-1H-indol-2-yl)-4-phenylcyclohexanol
- 1-benzo[b]thiophen-2-yl-4-dimethylamino-4-phenylcyclohexanol
- 1-benzo[b]thiophen-3-yl-4-dimethylamino-4-phenylcyclohexanol
- 1-(1-benzenesulphonyl-1H-indol-2-yl)-4-dimethylamino-4-

phenylcyclohexanol

- 1-benzofuran-2-yl-4-dimethylamino-4-phenylcyclohexanol; and
- 1-benzothiazol-2-yl-4-dimethylamino-4-phenylcyclohexanol, or

a salt thereof with a physiologically tolerated acid.

77. A substituted 4-aminocyclohexanol compound according to claim 5, wherein said compound is selected from the group consisting of:

- 4-dimethylamino-1-(1-methyl-1H-indol-2-yl)-4-phenylcyclohexanol
- 1-benzo[b]thiophen-2-yl-4-dimethylamino-4-phenylcyclohexanol
- 1-benzo[b]thiophen-3-yl-4-dimethylamino-4-phenylcyclohexanol
- 1-(1-benzenesulphonyl-1H-indol-2-yl)-4-dimethylamino-4-

phenylcyclohexanol

- 1-benzofuran-2-yl-4-dimethylamino-4-phenylcyclohexanol; and
- 1-benzothiazol-2-yl-4-dimethylamino-4-phenylcyclohexanol, or

a salt thereof with a physiologically tolerated acid.

78. A substituted 4-aminocyclohexanol compound according to claim 6, wherein said compound is selected from the group consisting of:

- 4-dimethylamino-1-(1-methyl-1H-indol-2-yl)-4-phenylcyclohexanol
- 1-benzo[b]thiophen-2-yl-4-dimethylamino-4-phenylcyclohexanol
- 1-benzo[b]thiophen-3-yl-4-dimethylamino-4-phenylcyclohexanol
- 1-(1-benzenesulphonyl-1H-indol-2-yl)-4-dimethylamino-4-

phenylcyclohexanol

- 1-benzofuran-2-yl-4-dimethylamino-4-phenylcyclohexanol; and
- 1-benzothiazol-2-yl-4-dimethylamino-4-phenylcyclohexanol, or  
a salt thereof with a physiologically tolerated acid.

79. A substituted 4-aminocyclohexanol compound according to claim 7, wherein said compound is selected from the group consisting of:

- 4-dimethylamino-1-(1-methyl-1H-indol-2-yl)-4-phenylcyclohexanol
- 1-benzo[b]thiophen-2-yl-4-dimethylamino-4-phenylcyclohexanol
- 1-benzo[b]thiophen-3-yl-4-dimethylamino-4-phenylcyclohexanol
- 1-(1-benzenesulphonyl-1H-indol-2-yl)-4-dimethylamino-4-phenylcyclohexanol
- 1-benzofuran-2-yl-4-dimethylamino-4-phenylcyclohexanol; and
- 1-benzothiazol-2-yl-4-dimethylamino-4-phenylcyclohexanol, or  
a salt thereof with a physiologically tolerated acid.

80. A substituted 4-aminocyclohexanol compound according to claim 8, wherein said compound is selected from the group consisting of:

- 4-dimethylamino-1-(1-methyl-1H-indol-2-yl)-4-phenylcyclohexanol
- 1-benzo[b]thiophen-2-yl-4-dimethylamino-4-phenylcyclohexanol
- 1-benzo[b]thiophen-3-yl-4-dimethylamino-4-phenylcyclohexanol
- 1-(1-benzenesulphonyl-1H-indol-2-yl)-4-dimethylamino-4-phenylcyclohexanol
- 1-benzofuran-2-yl-4-dimethylamino-4-phenylcyclohexanol; and

- 1-benzothiazol-2-yl-4-dimethylamino-4-phenylcyclohexanol, or a salt thereof with a physiologically tolerated acid.

81. A substituted 4-aminocyclohexanol compound according to claim 9, wherein said compound is selected from the group consisting of:

- 4-dimethylamino-1-(1-methyl-1H-indol-2-yl)-4-phenylcyclohexanol
- 1-benzo[b]thiophen-2-yl-4-dimethylamino-4-phenylcyclohexanol
- 1-benzo[b]thiophen-3-yl-4-dimethylamino-4-phenylcyclohexanol
- 1-(1-benzenesulphonyl-1H-indol-2-yl)-4-dimethylamino-4-phenylcyclohexanol
- 1-benzofuran-2-yl-4-dimethylamino-4-phenylcyclohexanol; and
- 1-benzothiazol-2-yl-4-dimethylamino-4-phenylcyclohexanol, or a salt thereof with a physiologically tolerated acid.

82. A substituted 4-aminocyclohexanol compound according to claim 10, wherein said compound is selected from the group consisting of:

- 4-dimethylamino-1-(1-methyl-1H-indol-2-yl)-4-phenylcyclohexanol
- 1-benzo[b]thiophen-2-yl-4-dimethylamino-4-phenylcyclohexanol
- 1-benzo[b]thiophen-3-yl-4-dimethylamino-4-phenylcyclohexanol
- 1-(1-benzenesulphonyl-1H-indol-2-yl)-4-dimethylamino-4-phenylcyclohexanol
- 1-benzofuran-2-yl-4-dimethylamino-4-phenylcyclohexanol; and
- 1-benzothiazol-2-yl-4-dimethylamino-4-phenylcyclohexanol, or



a salt thereof with a physiologically tolerated acid.

83. A pharmaceutical composition containing at least one substituted 4-aminocyclohexanol compound according to claim 1.

84. A pharmaceutical composition according to claim 83, wherein the pharmaceutical composition comprises an opioid or an anesthetic.

85. A pharmaceutical composition containing at least one substituted 4-aminocyclohexanol compound according to claim 2.

86. A pharmaceutical composition according to claim 85, wherein the pharmaceutical composition comprises an opioid or an anesthetic.

87. A pharmaceutical composition containing at least one substituted 4-aminocyclohexanol compound according to claim 3.

88. A pharmaceutical composition according to claim 87, wherein the pharmaceutical composition comprises an opioid or an anesthetic.

89. A pharmaceutical composition containing at least one substituted 4-aminocyclohexanol compound according to claim 4.

90. A pharmaceutical composition according to claim 89, wherein the

pharmaceutical composition comprises an opioid or an anesthetic.

91. A pharmaceutical composition containing at least one substituted 4-aminocyclohexanol compound according to claim 5.

92. A pharmaceutical composition according to claim 91, wherein the pharmaceutical composition comprises an opioid or an anesthetic.

93. A pharmaceutical composition containing at least one substituted 4-aminocyclohexanol compound according to claim 6.

94. A pharmaceutical composition according to claim 93, wherein the pharmaceutical composition comprises an opioid or an anesthetic.

95. A pharmaceutical composition containing at least one substituted 4-aminocyclohexanol compound according to claim 7.

96. A pharmaceutical composition according to claim 95, wherein the pharmaceutical composition comprises an opioid or an anesthetic.

97. A pharmaceutical composition containing at least one substituted 4-aminocyclohexanol compound according to claim 8.

98. A pharmaceutical composition according to claim 97, wherein the

pharmaceutical composition comprises an opioid or an anesthetic.

99. A pharmaceutical composition containing at least one substituted 4-aminocyclohexanol compound according to claim 9.

100. A pharmaceutical composition according to claim 99, wherein the pharmaceutical composition comprises an opioid or an anesthetic.

101. A pharmaceutical composition containing at least one substituted 4-aminocyclohexanol compound according to claim 10.

102. A pharmaceutical composition according to claim 101, wherein the pharmaceutical composition comprises an opioid or an anesthetic.

103. A method of alleviating pain or treating a locomotive disorder or administering an anticonvulsant or muscle relaxant, said method comprising the step of administering to a mammal in need thereof an effective amount of a compound according to claim 1.

104. A method of alleviating pain or treating a locomotive disorder or administering an anticonvulsant or muscle relaxant, said method comprising the step of administering to a mammal in need thereof an effective amount of a compound according to claim 2.

105. A method of alleviating pain or treating a locomotive disorder or

administering an anticonvulsant or muscle relaxant, said method comprising the step of administering to a mammal in need thereof an effective amount of a compound according to claim 3.

106. A method of alleviating pain or treating a locomotive disorder or administering an anticonvulsant or muscle relaxant, said method comprising the step of administering to a mammal in need thereof an effective amount of a compound according to claim 4.

107. A method of alleviating pain or treating a locomotive disorder or administering an anticonvulsant or muscle relaxant, said method comprising the step of administering to a mammal in need thereof an effective amount of a compound according to claim 5.

108. A method of alleviating pain or treating a locomotive disorder or administering an anticonvulsant or muscle relaxant, said method comprising the step of administering to a mammal in need thereof an effective amount of a compound according to claim 6.

109. A method of alleviating pain or treating a locomotive disorder or administering an anticonvulsant or muscle relaxant, said method comprising the step of administering to a mammal in need thereof an effective amount of a compound according to claim 7.

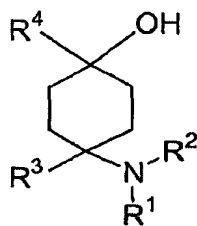
110. A method of alleviating pain or treating a locomotive disorder or administering an anticonvulsant or muscle relaxant, said method comprising the

step of administering to a mammal in need thereof an effective amount of a compound according to claim 8.

111. A method of alleviating pain or treating a locomotive disorder or administering an anticonvulsant or muscle relaxant, said method comprising the step of administering to a mammal in need thereof an effective amount of a compound according to claim 9.

112. A method of alleviating pain or treating a locomotive disorder or administering an anticonvulsant or muscle relaxant, said method comprising the step of administering to a mammal in need thereof an effective amount of a compound according to claim 10.

113. A method of treating phobias, stress and syndromes associated with stress, depression, epilepsy, Alzheimer's disease, senile dementia, general cognitive dysfunction, learning difficulties and memory loss, withdrawal symptoms, alcohol abuse or dependency, drug abuse or dependency, sexual dysfunction, cardiovascular diseases, hypotension, hypertension, tinnitus, pruritus, defective hearing, defective bowel motility, impaired assimilation of food, anorexia, obesity, diarrhoea, cachexia, urinary incontinence or for providing an antitussive or anaesthetic or for co-administration during treatment with an opioid analgesic or with an anaesthetic, for diuresis, antinatriuresis or anxiolysis in a mammal, said method comprising administering to said mammal an effective amount of a substituted 4-aminocyclohexanol compound corresponding to formula I,



I

wherein

$R^1$  and  $R^2$  independently of one another represent H; saturated or unsaturated, branched or unbranched, singly or multiply substituted or unsubstituted  $C_{1-8}$ -alkyl or  $C_{3-8}$ -cycloalkyl; singly or multiply substituted or unsubstituted aryl or heteroaryl; or singly or multiply substituted or unsubstituted aryl bound via  $C_{1-3}$ -alkylene,  $C_{3-8}$ -cycloalkyl or heteroaryl; wherein  $R^1$  and  $R^2$  are not both H, or the radicals  $R^1$  and  $R^2$  together form a ring and represent  $CH_2CH_2OCH_2CH_2$ ,  $CH_2CH_2NR^5CH_2CH_2$  or  $(CH_2)_{3-6}$ ;

wherein  $R^5$  represents H; saturated or unsaturated, branched or unbranched, singly or multiply substituted or unsubstituted  $C_{1-8}$ -alkyl or  $C_{3-8}$ -cycloalkyl; singly or multiply substituted or unsubstituted aryl or heteroaryl; or singly or multiply substituted or unsubstituted alkylene aryl bound via  $C_{1-3}$ ,  $C_{3-8}$ -cycloalkyl or heteroaryl;

$R^3$  represents unsubstituted or singly or multiply substituted aryl or heteroaryl;  $R^4$  represents unsubstituted or singly or multiply substituted  $C_{3-8}$ -cycloalkyl, aryl or heteroaryl;  $-CHR^6R^7$ ,  $-CHR^6-CH_2R^7$ ,  $-CHR^6-CH_2-CH_2R^7$ ,  $-CHR^6-CH_2-CH_2-CH_2R^7$ ,  $-C(Y)R^7$ ,  $-C(Y)-CH_2R^7$ ,  $-C(Y)-CH_2-CH_2R^7$  or  $-C(Y)-CH_2-CH_2-CH_2R^7$ ; or  $-R^8-L-R^9$

wherein

$Y = O, S$  or  $H_2$ ;

$R^6$  represents H, saturated or unsaturated, branched or unbranched, singly or multiply substituted or unsubstituted  $C_{1-7}$ -alkyl; or saturated or

unsaturated, branched or unbranched, singly or multiply substituted or unsubstituted C(O)O-C<sub>1-6</sub>-alkyl;

R<sup>7</sup> represents H; respectively unsubstituted or singly or multiply substituted C<sub>3-8</sub>-cycloalkyl, aryl or heteroaryl;

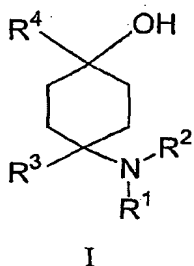
R<sup>8</sup> represents respectively unsubstituted or singly or multiply substituted aryl or heteroaryl;

L represents -C(O)-NH-, -NH-C(O)-, -C(O)-O-, -O-C(O)-, -O-, -S- or -S(O)<sub>2</sub>;

and  
R<sup>9</sup> represents unsubstituted or singly or multiply substituted aryl or heteroaryl,

or a salt thereof with a physiologically tolerated acid.

114. A method of producing a substituted 4-aminocyclohexanol compound corresponding to formula I



wherein

R<sup>1</sup> and R<sup>2</sup> independently of one another represent H; saturated or unsaturated, branched or unbranched, singly or multiply substituted or unsubstituted C<sub>1-8</sub>-alkyl or C<sub>3-8</sub>-cycloalkyl; singly or multiply substituted or unsubstituted aryl or heteroaryl; or singly or multiply substituted or unsubstituted aryl bound via C<sub>1-3</sub>-alkylene, C<sub>3-8</sub>-cycloalkyl or heteroaryl; wherein R<sup>1</sup> and R<sup>2</sup> are not both H, or the radicals R<sup>1</sup> and R<sup>2</sup> together form a ring and represent CH<sub>2</sub>CH<sub>2</sub>OCH<sub>2</sub>CH<sub>2</sub>,

$\text{CH}_2\text{CH}_2\text{NR}^5\text{CH}_2\text{CH}_2$  or  $(\text{CH}_2)_{3-6}$ ,

wherein

$\text{R}^5$  represents H; saturated or unsaturated, branched or unbranched, singly or multiply substituted or unsubstituted  $\text{C}_{1-8}$ -alkyl or  $\text{C}_{3-8}$ -cycloalkyl; singly or multiply substituted or unsubstituted aryl or heteroaryl; or singly or multiply substituted or unsubstituted aryl bound via  $\text{C}_{1-3}$ -alkylene,  $\text{C}_{3-8}$ -cycloalkyl or heteroaryl;

$\text{R}^3$  represents unsubstituted or singly or multiply substituted aryl or heteroaryl;

$\text{R}^4$  represents unsubstituted or singly or multiply substituted  $\text{C}_{3-8}$ -cycloalkyl, aryl or heteroaryl;  $-\text{CHR}^6\text{R}^7$ ,  $-\text{CHR}^6\text{-CH}_2\text{R}^7$ ,  $-\text{CHR}^6\text{-CH}_2\text{-CH}_2\text{R}^7$ ,  $-\text{CHR}^6\text{-CH}_2\text{-CH}_2\text{-CH}_2\text{R}^7$ ,  $-\text{C}(\text{Y})\text{R}^7$ ,  $-\text{C}(\text{Y})\text{-CH}_2\text{R}^7$ ,  $-\text{C}(\text{Y})\text{-CH}_2\text{-CH}_2\text{R}^7$  or  $-\text{C}(\text{Y})\text{-CH}_2\text{-CH}_2\text{-CH}_2\text{R}^7$ ; or  $-\text{R}^8\text{-L-R}^9$

wherein

$\text{Y} = \text{O}, \text{S}$  or  $\text{H}_2$ ;

$\text{R}^6$  represents H, saturated or unsaturated, branched or unbranched, singly or multiply substituted or unsubstituted  $\text{C}_{1-7}$ -alkyl; or saturated or unsaturated, branched or unbranched, singly or multiply substituted or unsubstituted  $\text{C}(\text{O})\text{O-C}_{1-6}$ -alkyl;

$\text{R}^7$  represents H; unsubstituted or singly or multiply substituted  $\text{C}_{3-8}$ -cycloalkyl, aryl or heteroaryl;

$\text{R}^8$  represents unsubstituted or singly or multiply substituted aryl or heteroaryl;

$\text{L}$  represents  $-\text{C}(\text{O})\text{-NH-}$ ,  $-\text{NH-C}(\text{O})\text{-}$ ,  $-\text{C}(\text{O})\text{-O-}$ ,  $-\text{O-C}(\text{O})\text{-}$ ,  $-\text{O-}$ ,  $-\text{S-}$  or  $-\text{S}(\text{O})_2\text{-}$ ; and

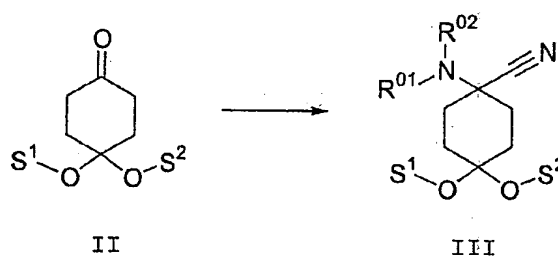
$\text{R}^9$  represents unsubstituted or singly or multiply substituted aryl or



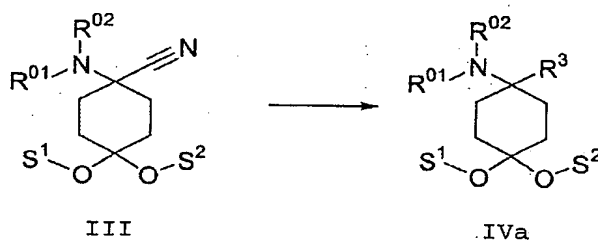
heteroaryl,

comprising the steps of:

- a. reacting a cyclohexane-1,4-dione protected by the groups  $S^1$  and  $S^2$  according to formula II in the presence of a compound corresponding to formula  $HNR^{01}R^{02}$  with a cyanide, to form a protected N-substituted 1-amino-4-oxo-cyclohexanecarbonitrile compound corresponding to formula III;

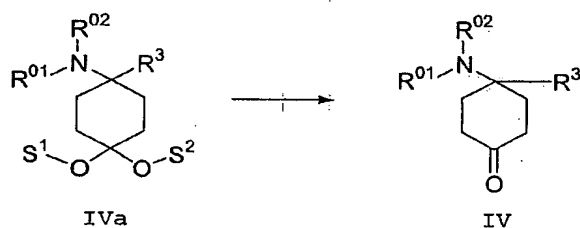


- b. reacting the compound corresponding to formula III with organometallic reagents corresponding to the formula metal- $R^3$  to form a compound corresponding to formula IVa;

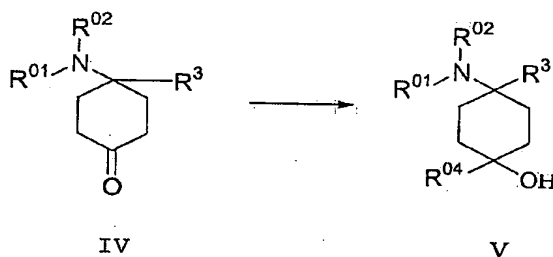


- c. removing the protective groups  $S^1$  and  $S^2$  on the compound corresponding to formula IVa to form a 4-substituted 4-

aminocyclohexanone compound corresponding to formula IV;



- d. reacting the 4-substituted 4-aminocyclohexanone compound corresponding to formula IV with organometallic reagents corresponding to the formula metal- $R^{04}$  to form a compound corresponding to formula V;



wherein

$R^{01}$  and  $R^{02}$  independently of one another represent H; H provided with a protective group; saturated or unsaturated, branched or unbranched, singly or multiply substituted or unsubstituted  $C_{1-8}$ -alkyl or  $C_{3-8}$ -cycloalkyl; singly or multiply substituted or unsubstituted aryl or heteroaryl; or singly or multiply substituted or unsubstituted aryl bound via  $C_{1-3}$ -alkylene,  $C_{3-8}$ -cycloalkyl or heteroaryl;

or the radicals  $R^{01}$  and  $R^{02}$  together form a ring and represent  $CH_2CH_2OCH_2CH_2$ ,  $CH_2CH_2NR^{05}CH_2CH_2$  or  $(CH_2)_{3-6}$ ,

wherein  $R^{05}$  represents H; H provided with a protective group; saturated or unsaturated, branched or unbranched, singly or multiply substituted or

unsubstituted C<sub>1-8</sub>-alkyl or C<sub>3-8</sub>-cycloalkyl; singly or multiply substituted or unsubstituted aryl or heteroaryl; or singly or multiply substituted or unsubstituted aryl bound via C<sub>1-3</sub>-alkylene, C<sub>3-8</sub>-cycloalkyl or heteroaryl;

R<sup>04</sup> represents H, H provided with a protective group; unsubstituted or singly or multiply substituted C<sub>3-8</sub>-cycloalkyl, aryl or heteroaryl; -CHR<sup>10</sup>R<sup>7</sup>, -CHR<sup>10</sup>-CH<sub>2</sub>R<sup>7</sup>, -CHR<sup>10</sup>-CH<sub>2</sub>-CH<sub>2</sub>R<sup>7</sup>, -CHR<sup>10</sup>-CH<sub>2</sub>-CH<sub>2</sub>-CH<sub>2</sub>R<sup>7</sup>, -C(Y)R<sup>7</sup>, -C(Y)-CH<sub>2</sub>R<sup>7</sup>, -C(Y)-CH<sub>2</sub>-CH<sub>2</sub>R<sup>7</sup> or -C(Y)-CH<sub>2</sub>-CH<sub>2</sub>-CH<sub>2</sub>R<sup>7</sup>; or -R<sup>8</sup>-L-R<sup>9</sup>

where R<sup>10</sup> represents H, saturated or unsaturated, branched or unbranched, singly or multiply substituted or unsubstituted C<sub>1-7</sub>-alkyl; and

S<sup>1</sup> and S<sup>2</sup> independently of one another represent protective groups or together represent a protective group.

115. The process of claim 44, wherein S<sup>1</sup> and S<sup>2</sup> together represent a monoacetal group.
116. The process of claim 44, wherein step a) further comprises:  
acylating, alkylating or sulfonating the compound corresponding to formula III in any sequence and optionally repeatedly; or  
where R<sup>01</sup>, R<sup>02</sup> or R<sup>06</sup> = H protected with a protective group, removing at least one protective group and optionally acylating, alkylating or sulfonating the compound corresponding to formula III; or  
where R<sup>01</sup> or R<sup>02</sup> or R<sup>06</sup> = H, introducing at least one protective group and optionally acylating, alkylating or sulfonating the compound corresponding to formula III.
117. The process of claim 44, wherein step b) further comprises:

acylating, alkylating or sulfonating the compound corresponding to formula IVa in any sequence and optionally repeatedly; or  
where  $R^{01}$ ,  $R^{02}$  or  $R^{06} = H$  protected with a protective group, removing at least one protective group and optionally acylating, alkylating or sulfonating the compound corresponding to formula IVa; or  
where  $R^{01}$  or  $R^{02}$  or  $R^{06} = H$ , introducing at least one protective group and optionally acylating, alkylating or sulfonating the compound corresponding to formula IVa.

118. The process of claim 44, wherein step c) further comprises:  
acylating, alkylating or sulfonating the compound corresponding to formula IV in any sequence and optionally repeatedly; or  
where  $R^{01}$ ,  $R^{02}$  or  $R^{06} = H$  protected with a protective group, removing at least one protective group and optionally acylating, alkylating or sulfonating the compound corresponding to formula IV; or  
where  $R^{01}$  or  $R^{02}$  or  $R^{06} = H$ , introducing at least one protective group and optionally acylating, alkylating or sulfonating the compound corresponding to formula IV.
119. The process of claim 44, wherein step d) further comprises:  
acylating, alkylating or sulfonating the compound corresponding to formula V in any sequence and optionally repeatedly; or  
where  $R^{01}$ ,  $R^{02}$  or  $R^{06} = H$  protected with a protective group, removing at least one protective group and optionally acylating, alkylating or sulfonating the compound corresponding to formula V; or  
where  $R^{01}$  or  $R^{02}$  or  $R^{06} = H$ , introducing at least one protective group and optionally acylating, alkylating or sulfonating the compound corresponding to formula V.

120. The process of claim 114, wherein the protective groups on H in R<sup>01</sup>, R<sup>02</sup>, R<sup>04</sup> or R<sup>05</sup> are selected from the group consisting of alkyl groups, benzyl groups or carbamates.

121. The process of claim 120, wherein the protective groups on H in R<sup>01</sup>, R<sup>02</sup>, R<sup>04</sup> or R<sup>05</sup> are selected from the group consisting of fluorenylmethyl-chloroformate groups (FMOC), benzyloxycarbonyl (Z) and tert-butyloxycarbonyl (Boc).

122. The process of claim 114, wherein the cyanide of step a) is potassium cyanide.

123. The process of claim 114, wherein the organometallic reagents of step b) are Grignard or organolithium reagents.

124. The process of claim 114, wherein the organometallic reagents of step d) are Grignard or organolithium reagents.